2.5 A Pinch of History

Figure it out

Pg. 45 Ex. 2.5.1313. Calculate and write the answer in scientific notation: (i) If each person in the world had 30 pieces of clothing, find the total number of pieces of clothing. (ii) There are about 100 million bee colonies in the world. Find the number of honeybees if each colony has about 50,000 bees. (iii) The human body has about 38 trillion bacterial cells. Find the bacterial population residing in all humans in the world. (iv) Total time spent eating in a lifetime in seconds.

Soln:

i) W.K.T., Global Human Population = 8.2×10^9 (refer page 37)

No. of pieces of clothing each person has = 30

Total no. of pieces of clothing = $30 \times 8.2 \times 10^9 = 246 \times 10^9 = 2.46 \times 10^{11}$

ii) No. of bee colonies in the world = 100×10^6

No. of honeybees in each colony = 50×10^3

Total no. of honeybees = $100 \times 10^6 \times 50 \times 10^3$

$= 5000 \times 10^9$

$= 5 \times 10^3 \times 10^9 = 5 \times 10^{12}$

2.5 A Pinch of History

Figure it out

Pg. 45 Ex. 2.5.13 iii) No. of bacterial cells in the human body = 38×10^{12}

Global Human Population = 8.2×10^9

Total bacterial population = $38 \times 10^{12} \times 8.2 \times 10^9$

$= 311.6 \times 10^{21} = 3.116 \times 10^{23}$

iv) Lifetime I assumed for this problem = 70years

Eating time per day = 1 hours = 3600 seconds

Total number of seconds that I spent for eating

$= 70 \times 365 \times 3600 = 91980000$

$= 9198 \times 10^4$

$= 9.198 \times 10^7$ seconds

Pg. 45 Ex. 2.5.14 What was the date 1 arab/1 billion seconds ago?

Soln:

W.K.T., 1 arab = 1 billion = 1000000000 = 1×10^9

No. of seconds in each day = 24 x 60 x 60 = 24 x 3600 = 86400

1 arab seconds ago = 1×10^9 / 86400 days

= 11574.0740741 (11574 + 4000secs)

1 billion seconds ago = 11,574 days, 1 hour, 6 minutes, and 40 seconds ago

1 arab seconds ago = 11574 days ago (app.)

= 31.7 years ago (app.) [11574/365]

Present date is 17Jun2026

Going backwards from today 31 years consists of 23 regular years (365 days) and 8 leap years (366 days: 2024, 2020, 2016, 2012, 2008, 2004, 2000, 1996).

(23x365) + (8x366) = 8,395 + 2,928 = 11,323 days

Subtracting 31 full years takes us to June 17, 1995

11,574 - 11,323 = 251days left to subtract

From 17June1995, 251 days ago was 8Oct1994

1 arab seconds ago was 8October1994 (today 17Jun2026)